

CLAIMS:

1. A sensor for use in an interactive electronic device, the sensor comprising:

a housing having:

a side wall defining an inner surface;

a top plate attached to the side wall and defining an inner surface;

a bottom plate attached to the side wall and defining an inner surface;

the inner surfaces of the side wall and the top and bottom plates collectively defining an interior chamber;

at least one top pad disposed on the inner surface of the top plate;

at least one bottom pad disposed on the inner surface of the bottom plate;

at least one switch communicating with the interior chamber; and

a trigger mechanism disposed within the interior chamber and rotatably connected to the housing;

the sensor being operative to generate a plurality of different states corresponding to respective positions of the housing relative to a reference plane, the states being generated by the movement of the housing relative to the reference plane and the resultant contact between the trigger mechanism and at least one of the top pad, the bottom pad, and the switch.

2. The sensor of Claim 1 further in combination with programmable electronic circuitry which is in electrical communication with the sensor and operative to translate at least some of the states generated by the sensor into respective effects.

3. The sensor of Claim 2 wherein the electronic circuitry is programmed to compare at least two successive states generated by the sensor to each other.

4. The sensor of Claim 3 wherein the electronic circuitry is further programmed to produce a selected effect upon successive states of a prescribed sequence being transmitted thereto from the sensor.

5. The sensor of Claim 1 wherein the trigger mechanism comprises:

- a trigger plate which is rotatably connected to the housing, the trigger plate including at least one aperture extending therethrough and defining an arcuate outer surface having at least one protuberance extending radially therefrom; and

- at least one trigger ball disposed within the aperture of the trigger plate;

- the switch of the sensor being selectively engageable by the protuberance of the trigger plate, with each of the top and bottom pads of the sensor being selectively engageable by the trigger ball of the trigger mechanism.

6. The sensor of Claim 5 wherein:

- at least two top pads are disposed on the inner surface of the top plate;

- at least two bottom pads are disposed on the inner surface of the bottom plate; and

- the trigger plate of the trigger mechanism is in electrical communication with one of the top pads and one of the bottom pads.

7. The sensor of Claim 1 wherein the switch is in electrical communication with at least one of the top and bottom pads.

8. A sensor for use in an interactive electronic device, the sensor comprising:

- a housing having:

a side wall defining an inner surface;  
a top plate attached to the side wall and defining an inner surface;

a bottom plate attached to the side wall and defining an inner surface;

the inner surfaces of the side wall and the top and bottom plates collectively defining an interior chamber;

at least one top inner pad and at least one top outer pad disposed on the inner surface of the top plate in juxtaposed relation to each other;

at least one bottom inner pad and at least one bottom outer pad disposed on the inner surface of the bottom plate in juxtaposed relation to each other;

at least one switch communicating with the interior chamber; and

a trigger mechanism disposed within the interior chamber and rotatably connected to the housing;

the sensor being operative to generate a plurality of different states corresponding to respective positions of the housing relative to a reference plane, the states being generated by the movement of the housing relative to the reference plane and the resultant contact between the trigger mechanism and at least one of the switch, the juxtaposed top inner and outer pads, and the juxtaposed bottom inner and outer pads.

9. The sensor of Claim 8 further in combination with programmable electronic circuitry which is in electrical communication with the sensor and operative to translate at least some of the states generated by the sensor into respective effects.

10. The sensor of Claim 9 wherein the electronic circuitry is programmed to compare at least two successive states generated by the sensor to each other.

11. The sensor of Claim 10 wherein the electronic circuitry is further programmed to produce a selected effect upon successive states of a prescribed sequence being transmitted thereto from the sensor.

12. The sensor of Claim 8 wherein the trigger mechanism comprises:

- a trigger plate which is rotatably connected to the housing, the trigger plate defining an arcuate outer surface having at least one cavity formed therein; and

- at least one trigger ball disposed within the cavity of the trigger plate;

- the switch of the sensor, the juxtaposed top inner and outer pads and the juxtaposed bottom inner and outer pads each being selectively engageable by the trigger ball of the trigger mechanism.

13. The sensor of Claim 12 wherein:

- at least two juxtaposed pairs of the top inner and outer pads are disposed on the inner surface of the top plate;

- at least two juxtaposed pairs of the bottom inner and outer pads are disposed on the inner surface of the bottom plate; and

- the trigger plate of the trigger mechanism is in electrical communication with one of the top inner pads and one of the bottom inner pads.

14. The sensor of Claim 8 wherein the switch is in electrical communication with at least one of the top and bottom outer pads.

15. The sensor of Claim 8 wherein the trigger mechanism comprises:

- a trigger plate which is rotatably connected to the housing, the trigger plate including at least one aperture extending therethrough and defining an arcuate outer surface having at least one protuberance

extending radially therefrom; and

at least one trigger ball disposed within the aperture of the trigger plate;

the switch of the sensor being selectively engageable by the protuberance of the trigger plate, with the juxtaposed pair of the top inner and outer pads and the juxtaposed pair of the bottom inner and outer pads each being selectively engageable by the trigger ball of the trigger mechanism.

16. The sensor of Claim 15 wherein:

at least two juxtaposed pairs of the top inner and outer pads are disposed on the inner surface of the top plate;

at least two juxtaposed pairs of the bottom inner and outer pads are disposed on the inner surface of the bottom plate; and

the trigger plate of the trigger mechanism is in electrical communication with one of the top inner pads and one of the bottom inner pads.

17. A sensor for use in an interactive electronic device, the sensor comprising:

at least two housings attached to each other, each of the housings having:

a side wall defining an inner surface;

a top plate attached to the side wall and defining an inner surface;

a bottom plate attached to the side wall and defining an inner surface;

the inner surfaces of the side wall and the top and bottom plates collectively defining an interior chamber;

at least one top pad disposed on the inner surface of the top plate of each of the housings;

at least one bottom pad disposed on the inner surface of the bottom plate of each of the housings;

at least one switch communicating with the interior chamber of each of the housings; and

a trigger mechanism disposed within the interior chamber of each of the housings and rotatably connected thereto, each trigger mechanism being rotatable about a respective one of first and second axes which extend in generally perpendicular relation to each other;

the sensor being operative to generate a plurality of different states corresponding to respective positions of the housings relative to a reference plane, the states being generated by the movement of the housings relative to the reference plane and the resultant contact between the trigger mechanisms and at least one of the top pads, the bottom pads, and the switches.

18. The sensor of Claim 17 comprising three housings attached to each other such that each trigger mechanism is rotatable about a respective one of first, second, and third axes which extend in generally perpendicular relation to each other.

19. The sensor of Claim 17 further in combination with programmable electronic circuitry which is in electrical communication with the sensor and operative to translate at least some of the states generated by the sensor into respective effects.

20. The sensor of Claim 19 wherein the electronic circuitry is programmed to compare at least two successive states generated by the sensor to each other.